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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/669,745	09/24/2003	Robert J. Boisselle	1-15957	4502
1678	7590	05/31/2006	EXAMINER	
MARSHALL & MELHORN FOUR SEAGATE, EIGHT FLOOR TOLEDO, OH 43604			LAZORCIK, JASON L	
			ART UNIT	PAPER NUMBER

1731

DATE MAILED: 05/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/669,745

Applicant(s)

BOISSELLE ET AL.

Examiner

Jason L. Lazorcik

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09/24/2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>03/11/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1 through 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding Claim 1, the limitation is set forth wherein holes emerge in the molding face of the full-face mold “***in an area predetermined by the configuration of the annular mold***”. From this language, the specific metes and bounds for which the applicant seeks patent protection are rendered indefinite, and it is unclear how the recited structure varies from prior art.

Further, Claim 5 refers to “the at least one groove” as being a peripheral annular groove. It is unclear from the language of the claim which groove of the set defined by “at least one groove” in Claims 1 and 4 the applicant intends as the antecedent for the recitation of “the at least one groove” in Claim 5. Further, note that no nexus is provided between the groove recited in Claim 1 and the groove of Claim 4.

Similarly in Claim 6, reference is made to “the groove” without properly identifying which groove among the group of “at least one groove” in claim 1, 4, or 5 is to be construed as “the” groove.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 through 15 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Yoshizawa (5,139,552). Yoshizawa describes the structure and operation of a glass sheet bending and tempering apparatus wherein the contact surface has a plurality of grooves defined therein and a plurality of inlet/outlet ports defined in each of the grooves.

Regarding Claim 1, the immediate reference (Column 3 Lines 31-55) describes;

1. A glass sheet bending and tempering apparatus having an upper convex mold member and a lower concave mold member and optionally incorporating a ring mold member (not shown).
2. Each of said mold members has an integral contact surface having a plurality of grooves defined in the surface
3. Each groove has a plurality of inlet and outlet ports opening into each of the grooves

It is here understood that the bending and tempering apparatus and the included mold member sub-components are equivalent to the applicant's press bending station and bending tools, respectively. The ring mold member is held equivalent to the

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claimed annular mold. Further, according to the definition of the full-faced mold as a solid male mold in the specification, either of the upper convex mold member or the lower concave mold member disclosed by Yoshizawa could be considered a "full-faced mold". Yoshizawa clearly indicated the in (3) above that a plurality of holes emerge in the molding face or "integral contact surface" of the mold member and in (2)/(3) that at least some of the holes are arranged in at least one groove which is formed in the face of the mold. Since said upper and lower mold members are designed to function cooperatively with the ring mold member, the shape of the full-face mold and thus the arrangement of the holes can reasonably be interpreted as being "predetermined" by the configuration of the ring mold.

Claim 2 sets the limitation that the holes are selectively connected to a negative pressure source. In the immediate reference (C4 L10-12), air which is applied from the air outlet ports is "drawn into the air inlet ports". Since a pressure differential is required to effect flow, it is implicit, due to the flow of air into the inlet ports, that said ports were selectively connected to a source of negative pressure.

With respect to Claim 3, Yoshizawa (C3 L55-56) states that the air outlet ports are connected to a source of air under pressure. This statement clearly reads on claim 3 as selectively connecting the holes to a positive pressure source.

Concerning Claim 4, Yoshizawa (C2 L11-16) discloses that a plurality of ports are defined in each of the grooves which is read on the current claim as connecting together several holes by at least one groove.

In Claim 5, the limitation is set forth that at least one groove in the press bending station is a peripheral annular groove which connects holes in the area of the groove. In Figure 12, Yoshizawa depicts a groove defined by wall 420 and the body of the annular ring 408 which connects hole 416 in the area of the groove. Since this "groove" is defined by said annular ring, it is understood to be equivalent to a "peripheral annular groove" as defined in the claim.

With respect to Claim 6, it is here understood that "the" groove refers to one of the set of grooves included in the claimed set of "at least one groove" in Claim 1 and as broadly depicted in the reference Figure 5. Referring to the immediate reference, Yoshizawa (C3 L65-68) defines the "raised ridges or lands for contact with the glass sheet" as having a width X ranging from 0.5 mm to 10 mm. It is therefore understood from Figure 5 that "the groove" is arranged approximately 0.5 mm to 10 mm from the edge of the glass sheet. Since the range identified by Yoshizawa overlaps with the claimed limitation that said groove is arranged 5-20 mm from the outer edge of the glass, the claimed range is anticipated by the prior art.

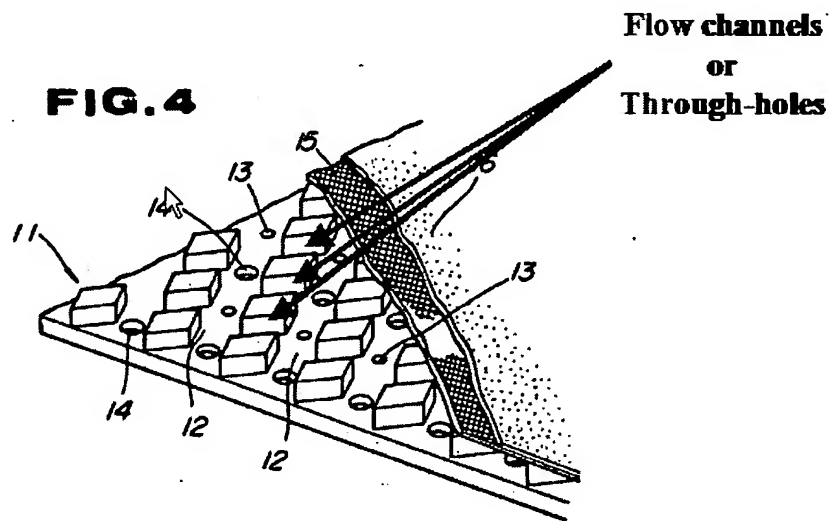
In regard to Claim 7, Yoshizawa (C3 L53) states that the surface of the mold should be provided with a plurality of parallel grooves. Since the disclosed grooves are parallel by definition, they are interpreted to be neither necessarily intersecting nor necessarily connected together.

Concerning Claim 8, the immediate reference (C4 L1-3) clearly defines the dimensions of each of the grooves as having a width ranging from 2 mm to 15mm and a

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depth ranging from 1mm to 6mm. These disclosed ranges clearly read on the claimed depth and width of the grooves of between 4-6mm.

With respect to Claim 9, additional flow channels and through-holes are incorporated in the molding face of the full-face mold. Yoshizawa in the immediate reference Figure 4 makes provisions for interconnected grooves (See below figure) thus providing additional flow channels and through-holes in the area enclosed by the holes.



Regarding Claims 10 through 13, Yoshizawa provides for multiple configurations cloth acting as the glass contact surface. Specifically regarding claim 10, Yoshizawa (C4 L15-27) makes provisions for covering the molds in one or more layers of materials (See also Metallic sheet 15 and Surface member 16 in Figure 2). Concerning claim 11, the cited passage indicates that the surface member should preferably be a woven or felt layer of glass fibers, ceramic fibers, carbon fibers, metallic fibers aramid fibers, or the like.

Yoshizawa further indicates with respect to claim 12 that "the metallic sheet 15 and surface member 16 may not be superposed, but are more effective when

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superposed". In Fig 5, it is also clearly implied that the surface contact member 15 has a finer structure than the metallic sheet 15. These two disclosures by Yoshizawa are collectively read on Claim 12 as covering the full face mold by two or more cloths lying one upon the other or "superposed", and whereby the cloth facing the glass (surface contact member 16) has a finer structure than the cloth next to the molding face (metallic sheet 15).

As described in the previous rejection of Claim 12, Yoshizawa makes provision for covering the molding face of the full-face mold by only one cloth in the statement that "the metallic sheet 15 and surface member 16 may not be superposed...".

Regarding claim 14, the immediate reference (C4 L24-27) indicates that the surface member can be one of either a woven or felt layer with a corresponding thickness ranging from 0.3mm to 0.5mm. This disclosure is understood to imply that the structure and the thickness of the cloth facing the glass sheet is adaptable and therefore can be adapted to the size of any impurity particle.

With respect to claim 15, Yoshizawa makes note in Column 1 Lines 16-20 that a solid contact member or mold member is to be made of a material of good thermal conductivity, such as boron nitride, stainless steel, or the like. This assertion is understood to imply that the mold member or "full-face mold" is chosen from among the group consisting of a ceramic, aluminum, stainless steel, compositions including fused silicas, or combinations thereof.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

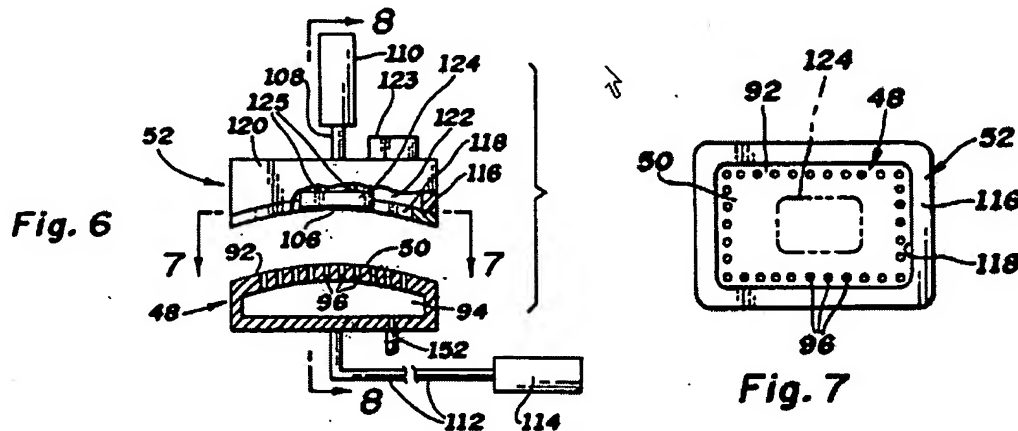
1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshizawa (5,139,552) in view of either McMaster (5,004,491) or Diederer (6,318,125). As outlined in the 35 USC § 102 rejection of Claim 1 above, Yoshizawa sets forth all the elements of a "press bending station" comprising a full-face mold and annular mold wherein multiple holes emerge in at least one groove formed on the face of the full-face mold. If it is considered that Yoshizawa does not explicitly set forth an existing relationship between the shape or configuration of the annular mold and the arrangement of either holes or grooves on the molding face of the full-face mold.

McMaster (see excerpt figures 6 and 7) presents a press bending station wherein a ring of vacuum ports (96) are provided on the face of a full-face mold (50) in an

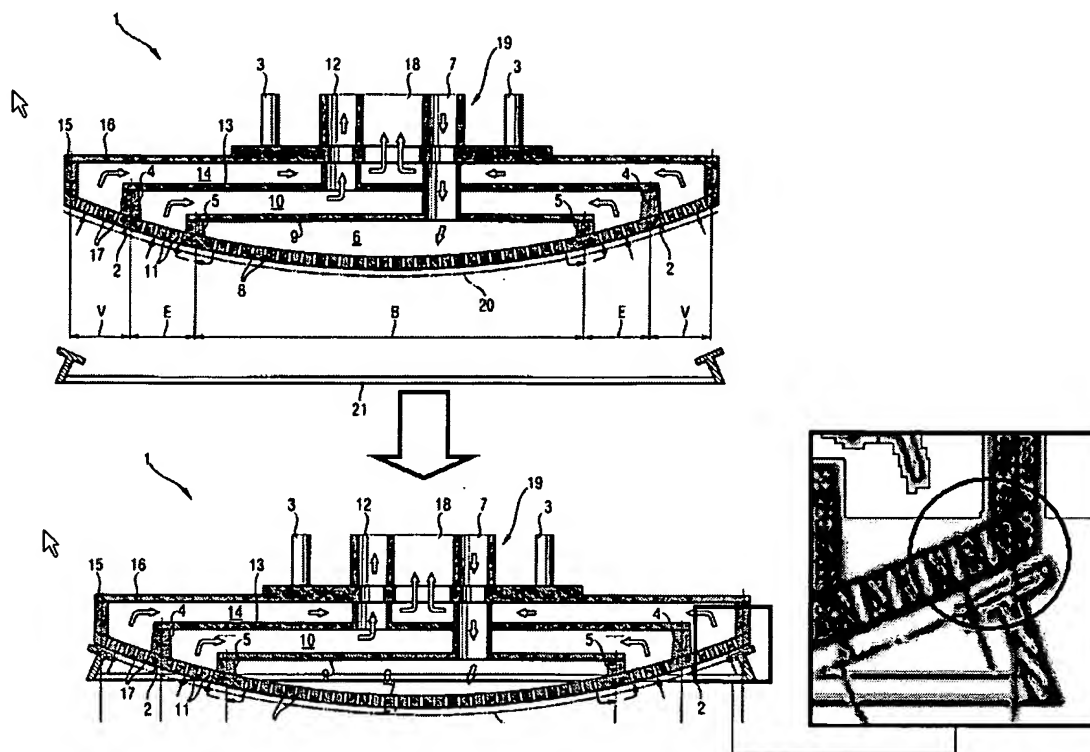
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arrangement and location "predetermined" by the ring mold (116). Specifically, the holes are arranged within the circumscribed perimeter defined by the contact area of the ring mold with the full-face mold.



Similarly, Diederer (See excerpt figure 1-upper figure) presents a full-face mold (19) with vacuum holes (17) and a complimentary annular ring mold (21). A slight modification of the Diederer figure (lower left figure) displays the disposition of the full face mold with the annular ring mold during close approach of said members during a press bending operation. The inset (lower right figure) displays the contact area between the full face mold and the ring mold. It is clear from the inset figure (black circle) that a plurality of holes emerge in the face of the full face mold in the contact area between the ring and full faced molds. In the present context, the holes are arranged on the full-face mold in an area "predetermined" by the configuration of the ring mold and more specifically by the contact of the ring mold on the full-face mold.

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Both references present a peripheral arrangement of vacuum ports emergent on the face of a full-face mold and arranged in an area "predetermined" by the configuration of the annular mold either;

- 1) Within the contact area of the ring mold on the full-face mold as taught by Diederer or;
- 2) Within the circumscribed perimeter defined by the contact area of the ring mold on the full-face mold as taught by McMaster.

It would have been obvious to one of ordinary skill in the art to utilize an arrangement of vacuum holes as presented by Diederer or equivalently by McMaster in the modification of the Yoshizawa press bending station in order to optimally secure the periphery of the glass sheet during the press bending operation.

Claims 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshizawa (5,139,552) in view of Funk (5,672,189). As outlined in the Claim rejections 1 and 4-10 above, Yoshizawa teaches structure and operation of a glass sheet bending and tempering apparatus wherein the contact surface has a plurality of grooves defined therein and a plurality of inlet/outlet ports defined in each of the grooves. Yoshizawa further teaches that air can be flowed from outlet ports or holes in the grooves on the molding surface in order to cool or temper the molded glass sheet. Yoshizawa fails to explicitly disclose that the mold can be heated by electricity, hot oil, air, other fluids, or by any other means. Funk discloses a press-bending station wherein the male press mold possesses contains heating passages for fluid heating. In Funk's design, elevated temperature fluid is passed through the mold body, acting as a heat transfer medium, and thus increasing the temperature of the mold body. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Yoshizawa in light of Funk to force elevated temperature air through the air outlet ports in order to elevate the temperature of the full-face mold.

Claims 17 through 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshizawa (5,139,552) in view of Shetterly (5,376,158).

Regarding Claim 17, (See claim rejections 1,2,and 3 above) Yoshizawa has described a mold with the following attributes:

1. A glass sheet bending and tempering apparatus having an upper convex mold member and a lower concave mold member and optionally incorporating a ring mold member (not shown)

2. Each of said mold members has an integral contact surface having a plurality of grooves defined in the surface
3. Each groove has a plurality of inlet and outlet ports opening into each of the grooves
4. Some of the ports or holes are selectively connected to a negative pressure source
5. Some of the ports or holes are selectively connected to a positive pressure source

It is understood that Yoshizawa, by (2)/(3) above, teaches the limitations on the claimed mold of having at least one groove on a major surface and having at least one hole defined in said groove whereby the groove and hole are in "fluid" communication. By point (4) above, Yoshizawa asserts that the hole is selectively connected to a "negative pressure source". As per Claim 18 and in accord with point (5) above, the immediate reference teaches that the hole or port can be connected to a positive pressure source.

Regarding Claim 19, Yoshizawa teaches in points 2,3,4 above of a mold with at least one groove on the major surface, at least one hole defined therein, and the hole being in "fluid" communication with the groove and connected to a negative pressure source. Yoshida further teaches in point (1) that this mold is incorporated into a press bending station containing at least two molding surfaces and designed to shape material when the molds are urged together. Similarly with respect to claim 20,

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Yoshizawa teaches in point (5) that this hole may be selectively connected to a positive pressure source.

Yoshizawa, with respect to the appropriate claims 17 through 20, fails to identify the negative pressure source as a means for securing material to the mold surface or the positive pressure source as a means for releasing material from said surface. Shetterly identifies a vacuum mold which is intended to both secure material to its surface by drawing a negative pressure differential at the interface and release said material by applying a positive pressure differential at said interface by:

1. "The vacuum drawn at the vacuum mold surface within the sealed periphery of the glass sheet is large enough to fully form the glass sheet to the shape of the mold surface."(C1L64-68)
2. "The pressurized gas supplied from the gas source of the vacuum system provides a release of the glass sheet from the downwardly facing surface upper vacuum mold." (C9 L25-29)

The mold surface and structures described by Yoshizawa incorporate the necessary elements required to utilize negative and positive pressure sources to accomplish the secure and release processes set forth by Shetterly. It would have therefore been obvious to one of ordinary skill in the art at the time of the invention to utilize the mold structure as described by Yoshizawa in light of the disclosure of Shetterly in order to secure and/or release materials from the surface of a mold during a press bending operation.

Conclusion


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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason L. Lazorcik whose telephone number is (571) 272-2217. The examiner can normally be reached on Monday through Friday 8:30 am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on (571) 272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JLL


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